On page 3, line 26, after "increased" insert --by using a very small diameter laser beam--.

On page 3, line 33, after "N", insert --different--.

On page 3, line 34, change "images" to --views--.

On page 3, line 35, after "N", insert --different--.

On page 3, line 36, change "images" to --views--.

On page 3, line 36, delete --pattern unit--.

On page 3, line 38, change "pattern unit" to --surface of the article--.

In the Claims:

Please cancel claim 1 without prejudice.

Please add new claims 96-121 as follows:

96. An inspection device for inspecting a patterned substrate, comprising:

a light source providing a light beam;

an optical system for directing the beam to impinge upon a defined spot on the substrate;

a plurality of detectors spaced apart from each other but concurrently directed at the defined spot, said plurality of detectors providing a first and a second reflection data streams corresponding to reflected light from the spot to first and second directions;

a memory having a first and a second reference data streams;

B2 cont.

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a comparator comparing said first reflection data stream to said first reference data stream and providing a first comparison signal, and comparing said second reflection data stream to said second reference data stream and providing a second comparison signal.

2 1
~~97~~. The inspection device of claim ~~96~~, further comprising a decision processor receiving said first and second comparison signals and providing a global defect alarm.

3 1
~~98~~. The inspection device of claim ~~96~~, further comprising:

a pixel characterizer receiving said first and second reflection data streams and assigning a corresponding pixel type to each inspected pixel of said first and second reflection data streams, each pixel type having a threshold associated therewith;

a subtractor receiving the first and second reflection data streams and the first and second reference data streams and calculating a difference value for each inspected pixel of said first and second reflection data streams; and

wherein for each inspected pixel in said first and second reflection data stream said comparator compares the difference value to the threshold associate with the pixel type assigned to said pixel, and issues a defect alarm when the difference value exceeds the threshold.

B2 cont

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~~99~~. The inspection device of claim ~~98~~, wherein said difference value comprises a difference between energy level of said inspected pixel and an average energy level of a plurality of pixels selected from one of said first and second reference data streams.

5 3
~~100~~. The inspection device of claim ~~98~~, wherein said difference value comprises a difference between a first average energy level of said inspected pixel and selected pixels in close proximity to said inspected pixel, and a second average energy level of a plurality of pixels selected from one of said first and second reference data streams.

6
~~101~~. A semiconductor wafer inspection system having an adaptive threshold setting capabilities, comprising:

a detector providing a signal of a plurality of inspected pixels;

a pixel characterizer receiving said signal and associating with each inspected pixel an inspected pixel type depending on the intensity of the inspected pixel;

a comparator receiving the signal of each of said inspected pixels and the associated inspected pixel type and determining therefrom a corresponding threshold, said comparator further performing a threshold-based comparison operation between each of the inspected pixels and a reference data.

7 6

~~102~~. The inspection system of claim ~~101~~, wherein said comparator further comprises:

an average circuit providing an average intensity of said reference data;

a subtractor providing an intensity difference between the intensity of the inspected pixel and the average intensity of the reference data; and

wherein said threshold-based comparison operation comprises comparing the intensity difference to the corresponding threshold.

8

~~103~~. A method of inspecting a patterned semiconductor wafer, comprising the steps of:

illuminating a defined spot on the wafer with a light beam;

obtaining a first pixel data from a light reflected from the spot to a first direction;

obtaining a second pixel data from a light reflected from the spot to a second direction different from the first direction;

obtaining a first reference pixel data from a memory and comparing said first pixel data to said first reference pixel data to determine whether said first pixel data points to a presence of a defect on the spot;

obtaining a second reference pixel data from the memory and comparing said second pixel data to said second reference pixel data to determine whether said second pixel data points to a presence of a defect on the spot.

5 cont.

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~~104~~. A method of inspecting a patterned semiconductor wafer, comprising the steps of:

illuminating a defined spot on the wafer with a light beam;

obtaining an inspected pixel of the spot;

inspecting the characteristics of the inspected pixel and assigning a pixel type to the inspected pixel, corresponding to the characteristics of the inspected pixel data;

obtaining a reference data from a memory and comparing the inspected pixel to said reference data in correlation to the assigned pixel type to determine whether the inspected pixel points to a presence of a defect on the spot.

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~~105~~. The method of claim ~~104~~, further comprising the steps of;

providing a threshold level corresponding to the assigned pixel type;

obtaining a difference value between the inspected pixel and the reference data; and

comparing the difference value to said threshold level to determine whether the inspected pixel points to a presence of a defect on the spot.

11 9

~~106~~. The method of claim ~~105~~, wherein said reference data comprises an average energy of a reference pixel corresponding to the inspected pixel, and energy of reference neighboring pixels situated in close proximity to said reference pixel.

12
~~107~~. A method of inspecting a patterned semiconductor wafer, comprising the steps of:

illuminating a defined spot on the wafer with a light beam;

obtaining an inspected pixel and inspected neighborhood pixels neighboring said inspected pixel;

inspecting the characteristics of the inspected pixel and assigning a pixel type to the inspected pixel;

obtaining a reference data and a reference data type from a memory and comparing the inspected pixel to said reference data in correlation to the assigned pixel type and reference data type to determine whether the inspected pixel points to a presence of a defect on the spot.

B2 cont

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~~108~~. The method of claim 12~~107~~, further comprising the steps of:

comparing the energy level of the inspected pixel to the energy level of the inspected neighborhood pixels to determine whether a large variation in energy exists;

when a large variation in energy exists, obtaining a convoluted energy of the inspected pixel and the neighborhood inspected pixels, and comparing the convoluted energy to the reference data in correlation to the assigned pixel type and reference data type to determine whether the inspected pixel points to a presence of a defect on the spot.

14
~~109~~. A method for inspecting a substrate to determine whether the substrate includes a defect, comprising:

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providing first and second inspection data streams that correspond to different perspectives of a single specified location on the substrate;

providing first and second reference data steams that respectively correspond to the first and second inspection data streams; and

comparing the first inspection data stream to the first reference data stream and the second inspection data stream to the second reference data stream.

15 ~~110~~. The method of claim 14 ~~109~~, wherein said comparing step comprises:

assigning a pixel type to each pixel in the first and second inspection data streams;

comparing each inspected pixel to a corresponding reference pixel, selected from one of said first and second reference data streams, using threshold values that vary depending upon the assigned pixel type.

16 ~~111~~. A semiconductor wafer inspection system having an adaptive threshold setting capabilities, comprising:

a detector providing a signal of a plurality of inspected pixels;

a pixel characterizer receiving said signal and associating with each inspected pixel an inspected pixel type depending on the intensity of the inspected pixel and the intensity of pixels neighboring said inspected pixel;

a comparator receiving the signal of each of said inspected pixels and the associated inspected pixel type and determining therefrom a

corresponding threshold, said comparator further performing a threshold-based comparison operation between each of the inspected pixels and a reference data.

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~~112~~. An apparatus for inspecting an article to determine whether the article includes a defect, the apparatus comprising:

an array of detectors, which provide first and second inspection information streams that comprise streams of pixel data which respectively correspond to different perspectives of a specified location on the article;

a processor, in communication with the detectors, which compares the first inspection information stream to a first reference information stream and the second inspection information stream to a second reference information stream to detect a defect in the article, and which assigns one of a plurality of types to each pixel in the inspection information streams using predetermined parameters and compares pixels in each inspection stream to pixels in each reference stream using threshold values that vary dependent upon the assigned type.

B2 cont

16
~~113~~. A method for inspecting an article for defects comprising:

illuminating a series of locations on the article with both dark field and bright field illumination;

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providing first and second dark field information streams that respectively correspond to a different dark field perspective for each location in the series;

providing first and second reference information streams that correspond to the first and second dark field information streams;

comparing the first dark field information stream to the first reference information stream to provide a first comparison signal and the second dark field information stream to the second reference information stream to provide a second comparison signal;

providing a bright field information stream that corresponds to each location in the series; and

using the first and second comparison signals and the brightfield information stream to determine whether the article includes a defect.

19 ~~114~~. The method of claim 18 ~~113~~, wherein at least one threshold for providing the first and second comparison signals is dynamically adjusted based upon a pixel type that is assigned to pixels in the first and second dark field information streams.

20 ~~115~~. The method of claim 19 ~~114~~, wherein the intensity of each pixel relative to neighboring pixels is used to assign the pixel type.

21 ~~116~~. An apparatus for inspecting an article for defects comprising:

an optical system, which illuminates a series of locations on the article with both dark field and bright field illumination;

an array of detectors, which provides first and second dark field information streams that respectively correspond to a different dark field perspective for each location in the series;

a memory, which provides first and second reference information streams that correspond to the first and second dark field information streams;

a comparator, which compares the first dark field information stream to the first reference information stream to provide a first comparison signal and the second dark field information stream to the second reference information stream to provide a second comparison signal;

a bright field detector, which provides a bright field information stream that corresponds to each location in the series; and

a decision processor, which uses the first and second comparison signals and the brightfield information stream to determine whether the article includes a defect.

22 ~~117~~. The apparatus of claim 21 ~~116~~, wherein at least one threshold for providing the first and second comparison signals is dynamically adjusted based upon a pixel type that is assigned to pixels in the first and second dark field information streams.

23 ~~118~~. The apparatus of claim 22 ~~117~~, wherein the intensity of each pixel relative to neighboring pixels is used to assign the pixel type.

24 ~~119~~. A method for determining whether an article includes a defect, the method comprising:

illuminating a series of locations on the article;

providing an inspection information stream using light reflected from the article as a result of the illuminating step;

providing a reference information stream; and

detecting a defect in the article by:

determining whether the difference between data in the inspection information stream and data in the reference information stream exceeds a threshold level; and

dynamically adjusting the threshold level so that different threshold levels are provided for different locations in the series of locations on the article.

25 ~~120~~. The method of claim 24 ~~119~~, wherein the step of dynamically adjusting the threshold level incorporates a determination of the intensity of pixels in the inspection information stream that correspond to the different locations on the article.

26 ~~121~~. The method of claim 25 ~~120~~, wherein the intensity of each pixel relative to neighboring pixels is used to assign the pixel type.

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